

**What is claimed is:**

1. A method of increasing tissue oxygenation in mammals, comprising applying a superoxygenated composition to a tissue surface for a time sufficient to increase the subepithelial partial oxygen pressure from about 30% to about 120% above baseline  $pO_2$ .

2. The method of claim 1 wherein the mammal is a human.

3. The method of claim 1 wherein the tissue is skin.

4. The method of claim 1 wherein the tissue is affected by a medical condition.

5. The method of claim 4 wherein the medical condition is selected from the group consisting of bedsores, wounds, burns, and ulcers.

6. The method of claim 4 wherein the medical condition is a bacterial infection.

7. The method of claim 6 wherein the bacterial infection is identified as an anaerobic pathogen bacterial infection.

8. The method of claim 1 wherein the superoxygenated composition is applied to a site selected from the group consisting of a mucosal surface and the surface of an organ.

9. The method of claim 8, wherein the organ is one that has been removed from an animal donor.

10. The method of claim 1 wherein the superoxygenated composition comprises from about  
5 45 ppm oxygen to about 220 ppm oxygen.

11. The method of claim 1 wherein the superoxygenated composition is at about 0°C to about 34°C.

10 12. The method of claim 1 wherein the superoxygenated composition comprises a pharmaceutically acceptable vehicle.

13. The method of claim 1 wherein the superoxygenated composition comprises water and oxygen microbubbles.

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14. The method of claim 13 wherein the oxygen microbubbles are between about 2μ and about 10μ in diameter.

15. The method of claim 13 wherein the microbubbles are between about 0.6μ and about 5μ  
20 in diameter.

16. The method of claim 13 wherein the superoxygenated composition is applied under agitation.

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17. The method of claim 16 wherein the agitation is provided in a whirlpool bath.

18. The method of claim 1 wherein the composition is applied in a cream, lotion or gel.

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19. The method of claim 1 wherein the composition is applied by soaking, immersion, spraying, rubbing or aerosols.